**SUNRISE 2 MATHEMATICS PP1 MARKING SCHEME**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **WORKING** | **MARKS** | **GUIDELINES** |
|  | Numerator:  Denominator:  Quotient | M1  M1  A1 |  |
|  |  | 3 |  |
|  | (i)  (ii) 0.03628 | B1  B1  M1  A1 |  |
|  |  | 4 |  |
|  |  | B1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 3 |  |
|  |  |  |  |
|  |  | A1  M1  A1 |  |
|  |  | 3 |  |
|  | 12 – 2x ˃ 18x – 8  = 20x ˃ - 20  x ˂ 1  18x – 8 ≥ -28 – 2x  20x ≥ - 20  X ≥ -1  -1 ≤ x ˂ 1  Integral solutions: 0 ,1 | M1  M1  A1 |  |
|  |  | 3 |  |
|  | 3 (x+7) = 6x  3x + 21 = 6x  3x = 21  x=7 | M1  M1  A1 |  |
|  |  | 03 |  |
|  | L.C.M of 50 and 80  = 400  Number of poles =  = 13 | B1  M1  A1 |  |
|  |  | 3 |  |
|  | Coordinates: 0,2.5,6.0,10.5,16.0,22.5,30  A= ½ x1 (6+30) +2(2.5+6.0+10.5+16.0+22.5)  = 72.5 | B1  M1  A1 |  |
|  |  | 03 |  |
|  | 93 x 450 000  100  418 500  418500 x 100  113  370,353.98  = 370, 354 | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  |  |  |
|  |  |  |  |
|  |  | 10 |  |
|  | (a) Modal class 150 – 154  Class f cf  140 – 144 3 3 145 – 149 16 19  150 – 154 20 39  155 - 159 10 49  160 – 164 1 50    M = L + n/2 – c x i  f  = 149.5 + 25 – 19 x 5  20  = 151 | B1  M1  M1  A1 |  |
|  |  | 4 |  |
|  |  | M1  A1  A1 |  |
|  |  | 3 |  |
|  | F:\photos\EXAM TEMPLT\177.png | B1  B1  B1 | All angles correct  All lengths correct  Correct labelling  Measurement must be correct |
|  |  | 3 |  |
|  | **SECTION II** |  |  |
|  | (i)    (ii) | M1  A1  M1  M1  A1  M1  A1  M1  M1  A1 |  |
|  |  | 10 |  |
| (a)  (b)  (c) | (i) 800× 0.2  =160cm3  (ii) 160× 2000  = 320,000  (iii) Cement =  = 80 000  Bags =  =1600  Ballast =  = 120 000 tones  = 120 lorries | M1  A1  M1  A1  M1  A1  M1  A1  M1  A1  B1 |  |
|  |  | 10 |  |
|  |  |  |  |
|  | 001.jpg |  |  |
|  | a) 2c +9g = 98200  3c + 4g= 96000  b) (2 9)c = (98200)  3 4 9 96000  2 9 =1 ( 4 -9)  3 4 19 -3 2  -1 (4 -9) (2 9) (c)=-1 (4 -9)(98200)  19 -3 2 3 4 19 -3 2 96000  (c = -1 (-471200)  G 19 -102600)  (c=(24800)  G 54000)  Cows = Ksh 24800  Goats = Ksh. 5400  c) i) Selling price = 2 x 24800 x 1.3 + 9 x 5400 x 1.4  = 132 520  d) 132520 – 98200 x 100%  98200  34.95% | B1  B1  M1  B1  M1  A1  M1  A1  M1  A1 |  |
|  |  | 10 |  |
|  | i) AN= 2/3B – A  ii) BM= 2/5 a – b  iii) AB = B-A  i) OX = OB+BX  = B+K (2A-B)  = 2/5 KA +(i-k) b  OX = OA + AX  = (i-h)a+2/3 hb  ii) 2/5 ka +(1-k)b)= (1-h)a +2/3 b  2/5k=1-h……..(i)  1-k=2/3h……..(2)  From (1)h=1-2/5k  1-k=2/3(1-2/5k)  K=5/11  h= 1- 2/11  = 9/11  OX=2/5 X 5/11a+b (1-5/11)  =2/11a+6/11b | B1  B1  B1  B1  B1  M1  M1  M1  A1  A1 |  |
|  |  | 10 |  |
|  | (b) (i) 35km (ii) 33.5km (iii) S750W (iv) S420E  (c)Area of ADC  Area of ABC  =  Total area  Area of the scale |  |  |
|  |  |  |  |
| a).  b).  c). | L.S.F==  24x=18x+262.8  6x=262.8  X=43.8  Hence H=43.8+14.6  =58.4cm  18x7.5=135  24x10=240  0.5x2x14.69693846x42=617.2714  0.5x2x14.94782593x17.5=261.5869538  ATOTAL=135+240+617.27+261.59  =1,253.858354cm2  V=VB.P-VS.P  =(X 240 X 58.4)+(X 135X 43.93)  =4672-1976.85  =2695.15 cm3 | M1  A1  M1  M1M1  M1  A1  M1  M1  A1 |  |
|  |  | 10 |  |
|  |  |  |  |
|  | At t =0.5seconds.  Gradient =  =3.75m  when    (t-1) (t-3) = 0  t= 1 or 3 seconds  when t=1b, S=1-6+9+5  =9m  When t = 3s, S=  =5m.    At t = 1b,  max turning point  At t =  At (3,5) Min. turning point. |  |  |